



## SECTION 721

### CONCRETE CRIB-TYPE RETAINING WALLS

**721.1 Description.** This work shall consist of constructing closed or open face concrete crib-type retaining walls as specified in the contract in conformity with the dimensions, lines and grades shown on the plans or established by the engineer.

**721.2 Material.**

**721.2.1** All material shall conform to Division 1000, Materials Details, and specifically as follows:

Item	Section
Reinforcing Steel for Concrete	1036

**721.2.2** Crib units shall be constructed of Class A-1 concrete. Material, proportioning, air entraining, mixing, slump and transporting portland cement concrete shall be in accordance with [Sec 501](#). Concrete shall be placed and finished in accordance with the applicable provisions of [Sec 703](#).

**721.3 Construction Requirements.**

**721.3.1** Reinforcing steel bars shall be arranged symmetrically about the principal axis of the unit. The area of reinforcement for each unit shall be not less than 0.9 percent of its gross cross-sectional area. All reinforcing bars shall be held accurately in place with ties and chairs.

**721.3.2** Crib units shall conform to the dimensions shown on the plans and shall be so cast that those of the same nominal size will be fully interchangeable. The units shall not be removed from forms and casting beds in less than 12 hours after casting and until a flexural strength of not less than 300 pounds per square inch (2 MPa) or a compressive strength of not less than 1400 pounds per square inch (10 MPa), is attained. The engineer will determine which test, compressive or flexural, will be made. Flexural strength and compressive strength will be determined by tests made in accordance with MoDOT methods. Concrete shall be cured for not less than seven days in accordance with [Sec 703.3.17](#) except membrane curing will not be permitted. The units shall be dense, sound and free from cracks, spalls or surface imperfections.

**721.3.3** Units shall be stored and handled carefully. Damaged members shall be replaced at the contractor's expense. The bottom stretchers shall be placed on firm material. The units shall be erected to the elevations shown on the plans, and when assembled shall present a uniform, skillfully built appearance. The stretchers shall be laid 1/4 inch (6 mm) from the projecting lugs on the headers. One layer of commercially available 50-pound (2666 g/m<sup>2</sup>) roofing felt shall be placed between bearing areas of members.

**721.3.4** Backfilling operations, and filling within the crib, shall closely follow the erection of the successive tiers of units, and the walls shall not be laid higher than 3 feet (1 m) above the backfilled plane. Backfill material and backfilling procedures outside the crib units shall conform to the applicable requirements of [Sec 206.4.9](#). The crib units shall be filled with clay

or impervious earth to approximately 6 inches (150 mm) above the finished ground line in front of the wall. The fill material shall be thoroughly tamped and sloped to drain. Closed face crib walls shall be filled above the impervious material with a coarse aggregate approximating Gradation A, [Sec 1005.1.4](#). Open face crib wall units shall be filled above the impervious material with quarry run stone, consisting of approximately 50-pound (25 kg) stones with sufficient finer material to fill the interstices. A layer of the larger stone shall be carefully placed along the inside face of the units to block the openings between the stretchers and prevent loss of finer material.

**721.4 Method of Measurement.**

**721.4.1** Measurement of concrete crib-type retaining walls will be made to the nearest square foot ( $0.1 \text{ m}^2$ ) of area of the sloping front face of the wall for each width of cell. Final measurement will not be made except for authorized changes during construction, or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

**721.4.2** Excavation for construction of crib-type retaining walls will be measured and paid for in accordance with [Sec 206](#).

**721.5 Basis of Payment.** The accepted quantity of concrete crib-type retaining walls, complete in place, will be paid for at the unit price for each of the pay items included in the contract. No direct payment will be made for furnishing or placing fill or backfill material.